

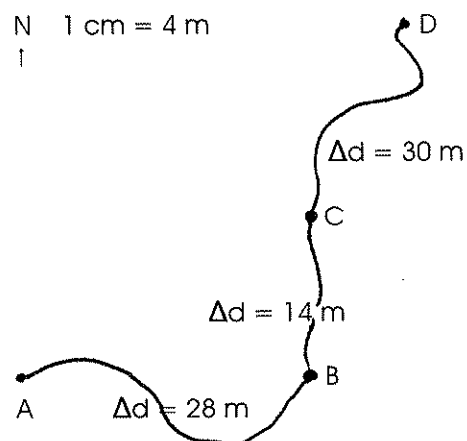
ADDING COLLINEAR VECTORS

- A camper kayaks 13 km [E] from a camping site, stops, has lunch, then kayaks 20 km [W].
 - What is the kayaker's final position with reference to the camping site? 7 km [W]
 - What is the kayaker's resultant (total) displacement? 33 km
 - What was the distance travelled?
- A boat sails 4.0 km [N45°E]. It then changes direction and sails 6 km [S45°W]. What is the boat's resultant displacement? 2.0 km [S45°W]
- A curling rock leaves a curler's hand at a point 2.1 m from the "hack" and travels southward. What is its displacement from its point of release after it has slid to a point 9.7 m from the "hack"? 7.6 m [S]

ADDING NON-COLLINEAR VECTORS

- A canoeist paddles 4.0 km [E], 5.0 km [N], 7.0 km [W] and 6.0 km [S]. What is the canoeist's final position relative to where he first started? 3.2 km [W18°S]
- Starting from her home, Vicki roller-bladed 200 m [W], 100 m [S], and 500 m [S30°E] to pick up a video. Where is the video store relative to her home? 535m [S5°E]
- The diagram in the margin shows the *distances* a letter carrier travelled. Use the information in the diagram, a ruler calibrated in *mm*, and a protractor to complete the table below:

Segment	Distance	Final position relative to A	Displacement
AB			
BC			
CD			
AC			
AD			



- What is the total displacement of a trip 50 km [W] followed by a trip of 100 km [N30°E]? 87 km [N]
- Do you get the same displacement if you added the vectors in the reverse order?
- A competitor in the Tour de France pedalled 3.5 km [E] followed by 4.0 km [S45°E]. Determine:
 - The total distance travelled 7.5 km
 - The resultant displacement 6.9 km [E24°S]
 - The competitor's final position
- Bobby-Joe runs to school, covering a distance of 500 m in a direction given by [N20°E] as measured from her home. She later trudges over to see her friend, Peggy-Sue, at her home located 300 m due west of the school. Together they go off to the mall 800 m away in a direction of [W50°S] from her friend's house to meet up with Billy-Bob Buttercup. What is Bobby-Joe's resultant displacement? 659 m [W12°S]